Remarks/Arguments:

Reconsideration of the application is requested.

Claims 1-20 remain in the application.

In item 2 on page 2 of the Office action, claims 1, 8, 9, 12-16, 19, and 20 have been rejected as being fully anticipated by Turner et al. (U.S Patent No. 5,792,700) (hereinafter "Turner") under 35 U.S.C. § 102.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, *inter alia*:

producing a doping at a surface of the semiconductor substrate.

Applicants respectfully disagree with the Examiner's statement in item 2 of the Office action, that Turner discloses "a method of producing a doped semiconductor substrate, comprising of doping a surface of the substrate".

Turner discloses the following sequential steps: "**depositing** a first **layer** of arsenic **atop** a semiconductor wafer", and "**depositing** a second **layer** of silicon over the arsenic layer" (column 1, lines 56-62).

Turner **does not** disclose or suggest producing a **doping** at a surface of the semiconductor substrate, as recited in claim 1 of the instant application. Furthermore, it is applicants' position that there is no way that a doping could be implicitly derived from the depositing steps disclosed in Turner.

In the remarks on page 2 of the Office action, the Examiner seems to argue that "arsenic by inherency of its electronegativity is a **dopant**", and therefore "**depositing** a first **layer** of arsenic **atop** a semiconductor", as disclosed in Turner, anticipates the step of "producing a **doping** at a surface of the semiconductor substrate" as recited in claim 1 of the instant application. However, this is simply **not correct**.

Applicants agree that arsenic is a **dopant**. However, applicants respectfully disagree with the Examiner's opinion that depositing a layer of a **dopant** material **atop** a semiconductor as disclosed in Turner, would anticipate "producing a **doping**", as recited in claim 1 of the instant application.

It is general knowledge in the art that the term "doping" refers to the adding of a dopant material to a pure semiconductor to change its electrical behavior ("Random House Dictionary of the English Language" 2nd Edition, 1983). An arsenic layer deposited **atop** a semiconductor substrate as disclosed in Turner, **does not** change the electric behavior of the semiconductor. Rather, in order to change the electric behavior of the semiconductor, the **dopant** material needs to be **inside** the semiconductor (e.g. by implantation).

Moreover, regarding the Examiner's position that a layer of dopant inherently is a doped layer, applicants respectfully and totally disagree. "Producing a doping" as recited in claim 1 of the instant application requires a **dopant** material and a **different** material that is to be doped. A homogeneous arsenic layer is made of a dopant material, but **does not** include a **different** material that is to be doped. Therefore,

the depositing of an arsenic layer **atop** a semiconductor wafer, as disclosed in Turner, absolutely **does not** equate to "producing a doping" as recited in claim 1 of the instant application.

For the reasons provided above, applicants believe that the Examiner is in error and that claim 1 is allowable.

Since claim 1 is believed to be allowable, dependent claims 8, 9, 12-16, 19, and 20 are believed to be allowable as well.

It is appreciatively noted from item 4 on page 2 of the Office action that claims 2-7, 10, 11, 17, and 18 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims are believed to be allowable in their existing form and therefore have not been amended.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, they are believed to be patentable as well.

Even though the claims are believed to be patentable, further discussion of the Turner reference is given below.

It is applicants' position that claim 1 is also not obvious over Turner, since Turner does not give any suggestion in the direction of the present invention because the methods and problems to be solved by claim 1 and Turner are very different.

Turner teaches providing an improved technique for enhancing or enlarging the size of polysilicon grains in a polysilicon film (column, 1, lines 37-39). The arsenic layer is merely used "to provide sufficient arsenic within the silicon layer (whether such layer be amorphous silicon or polycrystalline silicon) to enhance or promote an increase in the size of individual polysilicon grains grown within the silicon layer during the first annealing step" (column 2, lines 13-17). A later step states "a second anneal of the wafer is conducted for a time period sufficient to outgas arsenic from the polysilicon layer" (column 3, lines 37-39). It is clear from these statements that the arsenic layer of Turner is not intended for producing the "buried doping" of claim 1 of the instant application.

The goal of the present invention is to produce a buried doping with "steep doping profiles" (page 4, lines 15-16). Turner does not disclose anything related to doping layers or doping profiles. Turner only discloses "outgassing arsenic from the polysilicon layer". Therefore, a person of ordinary skill in the art would not use the teaching of Turner to solve the problem of providing a buried doping with a steep doping profile.

In view of the foregoing, reconsideration and allowance of claims 1-20 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Applic. No. 09/904,360
Amdt. dated October 15, 2003
Reply to Office action of July 15, 2003

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner & Greenberg P.A., No. 12-1099.

Respectfully submitted,

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For Applicant(s)

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